

ABSTRACT

A single crystal having the general composition, $\text{Ce}_{2x}(\text{Lu}_{1-y}\text{Y}_y)_{2(1-x)}\text{SiO}_5$ where $x =$ approximately 0.00001 to approximately 0.05 and $y =$ approximately 0.0001 to approximately 0.9999; preferably where x ranges from approximately 0.0001 to approximately 0.001 and y ranges from approximately 0.3 to approximately 0.8. The crystal is useful as a scintillation detector responsive to gamma ray or similar high energy radiation. The crystal as scintillation detector has wide application for the use in the fields of physics, chemistry, medicine, geology and cosmology because of its enhanced scintillation response to gamma rays, x-rays, cosmic rays and similar high energy particle radiation.